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The opinion in support of the decision being entered today
(1) was not written for publication in a law journal and
(2) is not binding precedent of the Board.

Paper No. 20

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte STEVEN M. ZIMMERMAN

Appeal No. 97-1932
Application 08/028,047¹

ON BRIEF

Before URYNOWICZ, JERRY SMITH, and FLEMING, Administrative
Patent Judges.

JERRY SMITH, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on the appeal under 35 U.S.C. § 134
from the examiner's rejection of claims 13-18 and 25-34.

¹ Application for patent filed March 8, 1993.

Claims 1-5, 9-12 and 19-24 have been cancelled. Claims 6-8 have been allowed by the examiner.

The disclosed invention pertains to a field emission display (FED) device. Such a device has a cathode emitter for emitting electrons which are caused to impinge on an anode layer by the application of an electric field. The anode layer is attached to a transparent face plate having a phosphor layer deposited thereon. The impingement of the electrons on the phosphor layer causes light to be generated which can be viewed through the face plate.

Representative claim 25 is reproduced as follows:

25. A field emission display (FED) device comprising:

a transparent face plate having a thin film phosphor layer deposited thereon;

a conductive anode layer deposited on the phosphor layer;

at least one insulator layer serving as a spacer and deposited on the anode layer;

a conductive extraction grid layer deposited upon the at least one insulator layer, said conductive extraction grid layer, said at least one insulator layer and said anode layer being etched to form an array of vacuum space holes extending to said phosphor layer;

an electron emitter layer molded in a form of an array of lithographically-formed, sharply-pointed cathode structures, a

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plurality of sharply-pointed cathode structures being provided per picture element, said array of sharply pointed cathode structures being separated from the extraction grid layer by a second insulator layer, said electron emitter layer being formed of a material for emitting electrons under influence of an electric field; and

an envelope sealed to the face plate and enclosing the emitter layer, said extraction grid layer and said phosphor layer in a vacuum,

said transparent face plate, said thin film phosphor layer, said conductive anode layer, said at least one insulator layer, said conductive extraction grid layer and said electron emitter layer forming a unitary, monolithic structure.

The examiner relies on the following references:

Oess et al. (Oess)	4,020,381	Apr. 26, 1977
Shmulovich	4,626,739	Dec. 02, 1986
Kishino et al. (Kishino)	5,153,483	Oct. 06, 1992

The admitted prior art disclosed in appellant's specification.

Claims 25, 26 and 29-34 stand rejected under 35 U.S.C. § 103 as being unpatentable over the teachings of Oess in view of Kishino. Claims 27 and 28 stand rejected under 35 U.S.C. § 103 as being unpatentable over the teachings of Oess and Kishino and further in view of the admitted prior art. Claims 13 and 14 stand rejected under 35 U.S.C. § 103 as being unpatentable over the teachings of Kishino in view of

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Shmulovich. Finally, claims 15-18 stand rejected under 35 U.S.C. § 103 as being unpatentable over the teachings of Kishino and Shmulovich and further in view of the admitted prior art.

Rather than repeat the arguments of appellant or the examiner, we make reference to the briefs and the answer for the respective details thereof.

OPINION

We have carefully considered the subject matter on appeal, the rejections advanced by the examiner and the evidence of obviousness relied upon by the examiner as support for the rejections. We have, likewise, reviewed and taken into consideration, in reaching our decision, the appellant's arguments set forth in the briefs along with the examiner's rationale in support of the rejections and arguments in rebuttal set forth in the examiner's answer.

It is our view, after consideration of the record before us, that the collective evidence relied upon and the level of skill in the particular art would have suggested to one of ordinary skill in the art the obviousness of the

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invention as set forth in claims 25-34. We reach the opposite conclusion with respect to claims 13-18. Accordingly, we affirm-in-part.

Appellant has nominally indicated that the claims do not stand or fall together [brief, pages 4-6], but he has not specifically argued the limitations of each of the claims as required by 37 CFR § 1.192. The extent of appellant's arguments, with respect to each of the different rejections, appears on pages 13-14 and 18-19 of the brief wherein it is stated what is recited in each of the claims and then it is baldly asserted that the prior art does not teach or suggest the features of these claims with no analysis or discussion of obviousness whatsoever. Simply pointing out what a claim requires with no attempt to point out how the claims additionally patentably distinguish over the prior art does not amount to a separate argument for patentability. See In re Nielson, 816 F.2d 1567, 1572, 2 USPQ2d 1525, 1528 (Fed. Cir. 1987). At the time appellant's brief was filed, 37 CFR § 1.192(c)(7) required that the argument explain

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"why the claims...are believed to be separately patentable. Merely pointing out differences in what the claims cover is not an argument as to why the claims are separately patentable." Appellant's arguments fail to satisfy this requirement as a basis to have the claims considered separately for patentability. Since appellant is considered to have made no appropriate separate arguments for patentability, all claims within each separate rejection will stand or fall together. Note In re King, 801 F.2d 1324, 1325, 231 USPQ 136, 137 (Fed. Cir. 1986); In re Sernaker, 702 F.2d 989, 991, 217 USPQ 1, 3 (Fed. Cir. 1983).

We consider first the rejection of claims 25, 26 and 29-34 under 35 U.S.C. § 103 as unpatentable over Oess in view of Kishino. As a general proposition in an appeal involving a rejection under 35 U.S.C. § 103, an examiner is under a burden to make out a prima facie case of obviousness. If that burden is met, the burden of going forward then shifts to the applicant to overcome the prima facie case with argument and/or evidence. Obviousness is then determined on the basis of the evidence as a whole and the relative persuasiveness of

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the arguments. See In re Oetiker, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992); In re Hedges, 783 F.2d 1038, 1039, 228 USPQ 685, 686 (Fed. Cir. 1986); In re Piasecki, 745 F.2d 1468, 1472, 223 USPQ 785, 788 (Fed. Cir. 1984); and In re Rinehart, 531 F.2d 1048, 1052, 189 USPQ 143, 147 (CCPA 1976).

The examiner has pointed out the teachings of Oess, has pointed out the perceived differences between Oess and the claimed invention, and has reasonably indicated how and why Oess would have been modified and/or combined with Kishino to arrive at the claimed invention. The examiner has, therefore, at least satisfied the burden of presenting a prima facie case of obviousness. The burden is, therefore, upon appellant to come forward with evidence or arguments which persuasively rebut the examiner's prima facie case of obviousness. Appellant has presented several arguments in response to the examiner's rejection. Therefore, we consider obviousness based upon the totality of the evidence and the relative persuasiveness of the arguments.

The examiner basically relies on Oess for teaching all the features of independent claim 25 except for the plurality of sharply-pointed cathode structures for each picture element. Oess discloses a single "sharply-pointed" cathode structure for each picture element. Kishino teaches the desirability of using a plurality of sharply-pointed cathode structures for each picture element. In the examiner's view, it would have been obvious to incorporate Kishino's plural cathode structure into Oess' display device.

Appellant argues that the rejection is wrong as a matter of law because Oess is not directed to field emission displays and the combination of Oess with Kishino would degrade the performance of the Oess display [brief, pages 9-10]. The examiner disagrees with both of these contentions. We are not persuaded by either of appellant's arguments for reasons which follow.

With respect to the first point argued by appellant, we do not agree that the combination of Oess and Kishino hinges as a matter of law on whether Oess is directed to an FED. The question is whether Oess and Kishino are

sufficiently similar that the proposed combination of their teachings would have been suggested to the artisan. Both references relate to a display device which operates by impinging electrons emitted from a cathode emitter onto an anode attached to a phosphor layer. We are of the view that the specific manner in which the electrons are created is not fatal to the combination of these teachings. Thus, the Oess teaching of thermionic cathodes does not preclude a cathode-anode relationship as taught by Kishino. We agree with the examiner that Kishino would have suggested to the artisan the obviousness of using a plurality of sharply-pointed cathode structures for each picture element of Oess.

With respect to the second point argued by appellant, we do not agree with appellant that the modification of Oess with Kishino would necessarily degrade the performance of the Oess display. The examiner also disputes this contention, and appellant offers no evidence which would support this bare allegation. The examiner's principle that plural cathodes would increase the display of each picture element is apparently correct as suggested by Kishino, and would appear

to be suggested for any type of display using a cathode and an anode such as taught by Oess. Therefore, we are not persuaded by appellant that the examiner's proposed combination would not work.

Appellant argues that the combination proposed by the examiner comes only from a hindsight reconstruction of the invention [brief, page 11]. We do not agree. The examiner cites Kishino for the sole purpose of suggesting a plurality of cathode structures for each picture element. Kishino clearly suggests that each picture element of a display can have a variable number of emitters [see column 4, lines 65-68]. Therefore, the theory used by the examiner is clearly suggested by the applied references and is not based only on hindsight.

Appellant argues that the rejection is wrong as a matter of fact because Figure 3 of Oess does not teach a monolithic structure as claimed [brief, page 12]. Figure 3 is described as an exploded view of a portion of Figure 2 [column 2]. Oess discloses that "[a]s shown in FIG. 2, the structure is monolithic" [column 5, line 13]. Therefore, Figure 3 is

simply an exploded view of a monolithic structure.

Appellant's argument that Oess does not teach or suggest a monolithic structure is simply incorrect.

Since appellant has not persuaded us of error in the examiner's rejection of independent claim 25, we sustain the rejection of claim 25. For reasons discussed above, claims 26 and 29-34 stand or fall with claim 25. Therefore, we also sustain the rejection of claims 26 and 29-34.

We now consider the rejection of claims 27 and 28 under 35 U.S.C. § 103 as unpatentable over Oess in view of Kishino and the admitted prior art. These claims relate to the phosphor layer, and the examiner applies the admitted prior art to teach the specifics of the phosphor layer. Appellant argues that the admitted prior art does not teach a monolithic structure [brief, page 14]. As noted above, however, the monolithic structure is taught by Oess. Appellant also simply asserts that the recitations of claims 27 and 28 are not suggested by the combination of references, but appellant offers no further discussion in support of this assertion. Since appellant has not persuaded us of error in

the rejection of claims 27 and 28, we sustain the rejection of these claims as formulated by the examiner.

We now consider the rejection of claims 13 and 14 under 35 U.S.C. § 103 as unpatentable over Kishino and Shmulovich. The examiner cites Kishino as teaching a display screen having a transparent face plate, a conductive layer and a phosphor layer. The examiner notes that Kishino does not disclose the presence of pockets filled with the conductive and phosphor layers [answer, page 4]. The examiner cites Shmulovich as teaching the pocket recitations of independent claim 13 and contends that it would have been obvious to modify the Kishino face plate to have pockets as taught by Shmulovich [Id.].

Appellant argues that Shmulovich uses a reflective conductive layer rather than the transparent conductive layer as recited in claim 13 [brief, pages 16-17]. The examiner responded to this argument by stating that "it would have been obvious to one of ordinary skill in the art to use a transparent conductive layer in the modified display device of Kishino and Shmulovich since the modified display device is a

direct display device" [answer, page 8]. Appellant filed a reply brief disputing the obviousness of changing the reflective conductive layer of Shmulovich to a transparent conductive layer. According to appellant, the state of the prior art would have suggested that the phosphor layer and conductive layer in Shmulovich be interchanged if the conductive layer were transparent rather than reflective as disclosed in Shmulovich [reply brief, pages 4-5]. The examiner did not respond to the reply brief filed by appellant.

As we noted above, obviousness is determined on the evidence and the relative persuasiveness of the arguments. Appellant has presented a persuasive argument as to why a transparent conductive layer in Shmulovich would not be placed between the phosphor layer and the face plate. The examiner has not addressed this argument of appellant. Since we agree with appellant that a legitimate challenge to the obviousness of claims 13 and 14 has been raised, and since the examiner has offered no rationale beyond the mere conclusion of

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obviousness, we do not sustain the rejection of claims 13 and 14 as formulated by the examiner on the record before us.

We now consider the rejection of claims 15-18 under 35 U.S.C. § 103 as unpatentable over Kishino in view of Shmulovich and the admitted prior art. These claims all depend from independent claim 13 just discussed. The admitted prior art which is additionally applied against these claims was not cited by the examiner for the purpose of demonstrating the obviousness of replacing the Shmulovich reflective layer with a transparent layer. Therefore, the admitted prior art does not make up for the deficiency noted above in the rejection of claim 13. Therefore, we do not sustain the rejection of claims 15-18 for the same reasons discussed above with respect to claim 13.

In summary, we have sustained the rejection of claims 25-34, but we have not sustained the rejection of claims 13-18. Thus, the decision of the examiner rejecting claims 13-18 and 25-34 is affirmed-in-part.

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No time period for taking any subsequent action in
connection with this appeal may be extended under 37 CFR
§ 1.136(a).

AFFIRMED-IN-PART

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)	
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